



Poster session 3 – Wednesday 6 July

P3.021 Constraints on large extra dimensions from MINOS and MINOS+

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on behalf of MINOS collaboration

The MINOS experiment was designed to study neutrino oscillation between two steel-scintillator tracking calorimeters separated by a distance of 735 km using muon neutrinos and antineutrinos generated in the NuMI facility at Fermilab. Running for ten years with a neutrino beam peak energy of 3 GeV, MINOS yielded some of the best constraints on the atmospheric neutrino oscillation parameters to date. The MINOS+ experiment subsequently ran for about three years using a neutrino beam designed for the NO ν A experiment, increasing the beam peak energy to 7 GeV. This shift to higher neutrino energies improves the sensitivity to exotic phenomena such as large extra dimensions. Assuming the existence of large extra dimensions, sterile neutrinos arise as Kaluza-Klein states. Mixing between the active neutrinos and Kaluza-Klein states alters the neutrino oscillation probabilities, allowing neutrino oscillation experiments to constrain the size of large extra dimensions. Using a MINOS era NuMI beam exposure of 10.6×10^{20} protons-on-target, we combined muon neutrino charged current and neutral current data sets from the Near and Far detectors and observed no evidence for deviations from standard three-flavor neutrino oscillation. This result will be presented together with the status of the MINOS+ large extra dimensions search.